

FIG. 1

BL instruction:

First halfword (HW1)				Second halfword (HW2)			
15	11	10	0	15	11	10	0
+-----+-----+-----+-----+							
11110		xxxxxxxxxxxx		11101		xxxxxxxxxxxx	
+-----+-----+-----+-----+							

BLX instruction:

First halfword (HW1)				Second halfword (HW2)			
15	11	10	0	15	11	10	0
+-----+-----+-----+-----+							
11110		xxxxxxxxxxxx		11111		xxxxxxxxxxxx0	
+-----+-----+-----+-----+							

FIG. 2
PRIOR ART

16-bit instruction if ABCDE is in range 00000 to 11100:

First/only halfword			
15	11	10	0
+-----+-----+			
ABCDE		xxxxxxxxxxxx	
+-----+-----+			

32-bit instruction if ABCDE is 11101, 11110 or 11111:

First halfword (HW1)				Second halfword (HW2)			
15	11	10	0	15	11	10	0
+-----+-----+-----+-----+							
ABCDE		xxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxx			
+-----+-----+-----+-----+							

FIG. 3

ARM coprocessor instructions with bits[27:24] = 1100 or 1101:

31	28	27	25	24	23	22	21	20	19	16	15	12	11	8	7	4	3	0	
cond	110	0	0	0	0	x	xxxx	xxxx	cpnum	xxxxxxxx									
Undefined																			
cond	110	0	0	1	0	0	Rn	Rd	cpnum	opc	CRm								MCR
cond	110	0	0	1	0	1	Rn	Rd	cpnum	opc	CRm								MRR
cond	110	P	U	N	W	0	Rn	CRd	cpnum	offset									STC
cond	110	P	U	N	W	1	Rn	CRd	cpnum	offset									LDC

Note: (P,U,W) != (0,0,0) on the LDC and STC rows.

ARM coprocessor instructions with bits{27:24} = 1110:

31	28	27	24	23	21	20	19	16	15	12	11	8	7	5	4	3	0	
cond	1110	opc1			CRn	CRd	cpnum	opc2	0	CRm								CDP
cond	1110	opc1	0		CRn	Rd	cpnum	opc2	1	CRm								MCR
cond	1110	opc1	1		CRn	Rd	cpnum	opc2	1	CRm								MRC

FIG. 4
PRIOR ART

Coprocessor instructions in the enhanced Thumb instruction set:

With HW1[11:8] = 1100 or 1101:

First halfword (HW1)										Second halfword (HW2)									
15	12	11	9	8	7	6	5	4	3	0	15	12	11	8	7	4	3	0	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x 110 0 0 0 0 x xxxx										xxxx cpnum xxxxxxxx									
Undefined																			
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x 110 0 0 1 0 0 Rn										Rd cpnum opc CRm MCCR									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x 110 0 0 1 0 1 Rn										Rd cpnum opc CRm MRRC									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x 110 P U N W 0 Rn										CRd cpnum offset STC									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x 110 P U N W 1 Rn										CRd cpnum offset LDC									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+										+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									

Note: (P,U,W) != (0,0,0) on the LDC and STC rows.

With HW1[11:8] = 1110:

First halfword (HW1)									Second halfword (HW2)									
15	12	11	8	7	5	4	3	0	15	12	11	8	7	5	4	3	0	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+									+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x			1110		opc1		CRn		CRd			cpnum		opc2		0 CRm		CDP
+-----+-----+-----+-----+-----+-----+-----+-----+-----+									+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x			1110		opc1		0 CRn		Rd			cpnum		opc2		1 CRm		MCR
+-----+-----+-----+-----+-----+-----+-----+-----+-----+									+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
111x			1110		opc1		1 CRn		Rd			cpnum		opc2		1 CRm		MRC
+-----+-----+-----+-----+-----+-----+-----+-----+-----+									+-----+-----+-----+-----+-----+-----+-----+-----+-----+									

FIG. 5

ARM unconditional CDP instruction					Byte address	Thumb unconditional CDP instruction				
7	5	4	3	0		7	5	4	3	0
+-----+-----+-----+-----+-----+						+-----+-----+-----+-----+-----+				
opc2 0 CRm					A	opc1 CRn)				
+-----+-----+-----+-----+-----+						+-----+-----+-----+-----+-----+				
CRd cpnum					A+1	111x1110)				
+-----+-----+-----+-----+-----+						+-----+-----+-----+-----+-----+				
opc1 CRn					A+2	opc2 0 CRm)				
+-----+-----+-----+-----+-----+						+-----+-----+-----+-----+-----+				
111x1110					A+3	CRd cpnum)				
+-----+-----+-----+-----+-----+						+-----+-----+-----+-----+-----+				

FIG. 6

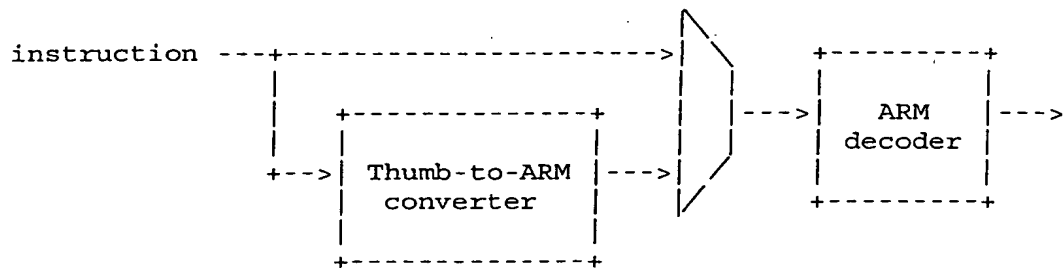


FIG. 7
PRIOR ART

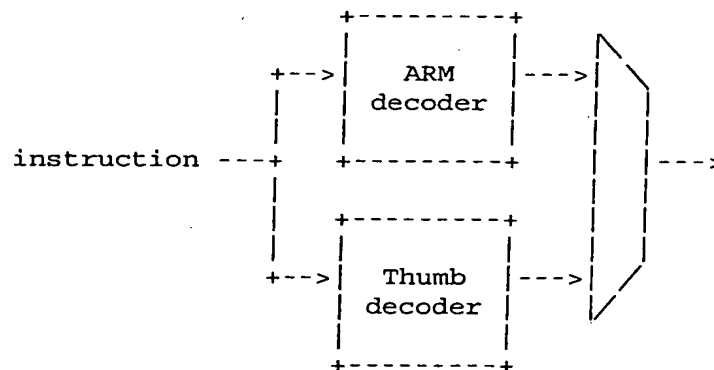


FIG. 8
PRIOR ART

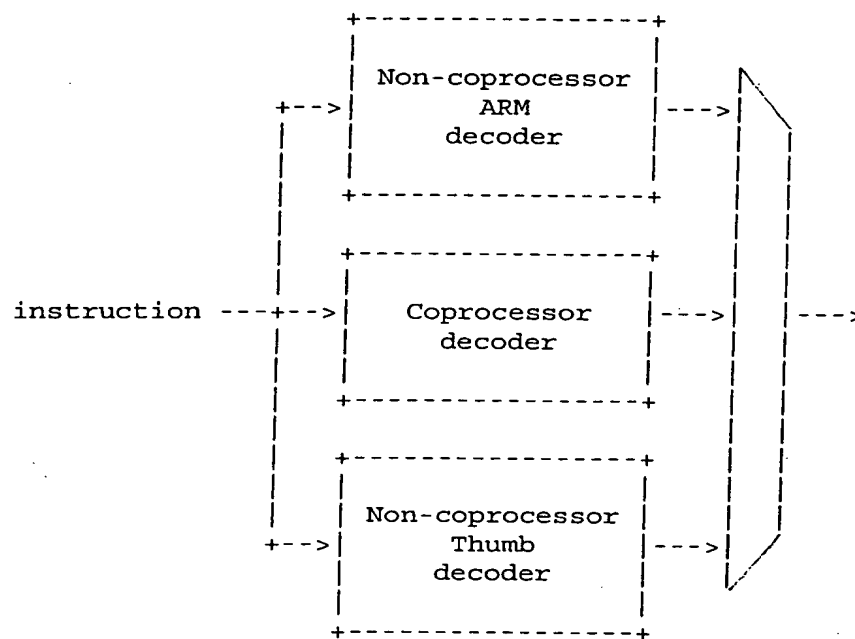


FIG. 9

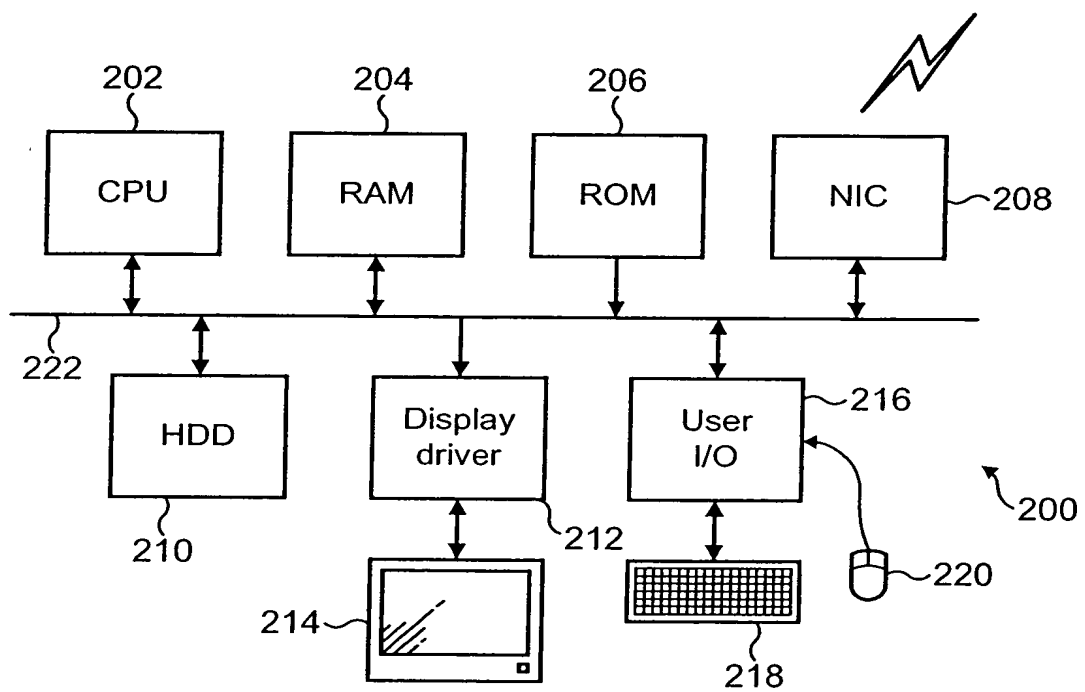


FIG. 10